

### REMARKS

This responds to the Office Action mailed on September 8, 2005.

Claims 28 and 44-46 are amended, claims 4 and 10-21 were previously canceled, no claims are added; as a result, claims 1-3, 5-9 and 22-46 are now pending in this application with claims 1-3, 5-9, 22-27 and 32-43 withdrawn from further consideration.

The amendments made herein have been to clarify the claims and are not intended to limit the scope of equivalents to which any claim element may be entitled. The amendments to the claims have support throughout the specification. No new matter has been added as a result. Applicant respectfully requests reconsideration of the above-identified application in view of the amendments above and the remarks that follow.

In giving the chronology of the prosecution in the Response to Restriction Requirement mailed on June 20, 2005, Applicant inadvertently used incorrect dates in the first sentence of the fourth paragraph. This paragraph should have instead started with, "In response to an Office Action mailed on December 31, 2001, the pending claims were amended to recite "a clip" in the Amendment and Response mailed on February 22, 2002. This amendment was entered in the RCE mailed on April 1, 2002." The remainder of the chronology is correct and highlights the extensive length of time the element "a clip" remained in the claims, was examined by the Examiner (repeatedly) and was argued on the merits, including on Appeal.

The Examiner apologized for the difference in examining styles which is certainly appreciated. However, the present Examiner did produce the Office Action mailed on November 15, 2004 in which claims directed to a clip were examined before being subsequently restricted in the Restriction Requirement at issue.

### Objection to the Claims

Claim 46 was objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant believes this to be a rejection under 35 U.S.C. 112, fourth paragraph, although this is not explicitly stated. Applicant respectfully states that the criteria of further limiting an independent claim is rejected by MPEP 608.01(n)(III), which recites: "A dependent claim does

not lack compliance with 35 U.S.C. 112, fourth paragraph, simply because there is a question as to ... whether the further limitation in fact changes the scope of the dependent claim from that of the claim from which it depends.” Instead, the test as to whether a claim is a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112, fourth paragraph) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim. MPEP 608.01(n)(III).

However, in an effort to facilitate prosecution, Applicant has amended claim 46.

Reconsideration and withdrawal of this objection is respectfully requested.

#### Interview Summary

Applicant's Representative, Barbara J. Clark and Examiner Leonard R. Leo exchanged phone messages on December 6, 2005. Ms. Clark advised the Examiner that the Wotring reference has already been sworn behind. No agreement was reached as to claim language. Ms. Clark thanks the Examiner for taking the time to return her telephone call.

#### §103 Rejection of the Claims

##### Claims 44-46

Claims 44-46 were rejected under 35 USC § 103(a) as being unpatentable over Morosas (U.S. 5,494,098) or Wotring (U.S. 6,199,624) in view of Azar et al. (U.S. 5,304,846). The Applicant respectfully traverses this rejection.

In the Amendment and Response mailed on October 11, 2001, Applicant submitted a declaration under 37 CFR 1.131 swearing behind Wotring. Wotring has been removed as a reference, which was acknowledged on page 2 of the Office Action mailed on December 31, 2001. Applicant will therefore contain comments to the other cited references. A copy of the declaration is provided herein for the Examiner as a convenience. ✓

The Office Action states that the references teach various elements of the claims.

Applicant respectfully submits that the Office Action has not established the *prima facie* obviousness of the present claims. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify

the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP 2142 (citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Applicant further notes that claims 45 and 46 are dependent claims. The additional limitations provided in dependent claims cannot by themselves be rendered obvious over the cited references if the independent claim from which it depends is determined to be nonobvious.

Morosas does not teach or suggest the claimed invention. Morosas discusses a plurality of spaced cooling fins required to be fixed not only to a base, but also to a top wall of a housing that has an aperture aligned with an outlet opening of the fan assembly. Airflow from the fan assembly extends from the opening in the top wall of the housing and out through both end openings of the housing. And, as has been admitted in earlier Office actions during the course of this prosecution, Morosas does not discuss a folded fin having semi-circular arches. Applicant further submits that there is no teaching or suggestion in Morosas to use fins having semi-circular arches.

Azar does not overcome the deficiencies of the primary reference. Azar discusses a narrow channel finned heat sink with rectangular-shaped parallel fins. Azar is attempting to optimize cooling by adjusting fin height and thickness. Applicant further can not find any discussion in Azar of any embodiments that included providing openings in the fin or an arch-shaped fin.

Clearly, the product in the primary reference and the product in the secondary reference are fundamentally different from one other and such critical differences must be recognized. In re Bond, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990), *reh'g denied*, 1990 U.S. App. LEXIS 19971 (Fed. Cir.1990).

There is further no indication of any appreciation of the problem being solved by Applicant's invention. When a person, having the references before him and not cognizant of Applicant's disclosure, would not be informed that a problem (solved by Applicant's claimed invention) ever existed, such references (which never recognized the problem) *could not have*

*suggested its solution.* Combining references in this manner is improper. In re Shaffer, 229 F.2d 476, 108 USPQ 326, 329 (CCPA 1956). Focusing on the obviousness of substitutions and differences instead of on the invention as a whole is a legally improper way to simplify the difficult determination of obviousness. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 USPQ 81, 93 (Fed. Cir. 1986).

There is simply no suggestion in Morosas *as to the desirability* of providing the particular aspect ratio or fin thickness of Azar as suggested in the Office Action. It also is simply not clear that the prior art can be modified in the manner suggested by the Examiner, although the mere fact that the prior art may be modified in this manner does not make the modification obvious unless the prior art suggested the desirability of the modification. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Applicant requests the Examiner to either provide evidence of such motivation or withdraw this rejection. See also In re Sang Su Lee, No. 00-1158 (Serial No. 07/631,240), (Fed. Cir.), decided January 18, 2002.

To render an invention obvious, the combination of the cited art must teach or suggest the claimed invention and provide a reasonable expectation of success in preparing the claimed invention. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 7 U.S.P.Q.2d 1673 (Fed. Cir. 1988). The suggested combination fails to do either.

Finally, the prior art references do not teach or suggest all the claim limitations. As noted above, it is the housing in Morosas which has an aperture aligned with an outlet opening of the fan assembly. There are no openings in the fins of Morosas. There are also no openings in the fins of Azar.

In contrast, claim 44, as amended, recites a heat sink, comprising a plurality of accordion-folded thermally conductive surfaces defining a fin bundle having a top and a bottom, each fin having an aspect ratio of between about 20:1 and 30:1, wherein the aspect ratio is a ratio of fin height to fin thickness and the top of the fin bundle includes a plurality of arches containing a plurality of trimmed openings that extend along a portion of the length of the plurality of arches, wherein more than fifty percent of the plurality of surfaces are receptive to an introduced convection medium; a fan for introducing the convection medium, the fan attached to the top of the fin bundle; and a base attached to the bottom of the fin bundle without a clip.

It has also been established that the Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. In re Sang Su Lee, 277 F.3d, 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). The statement in the Office Action that, "It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Morosas or Wotring an aspect ratio of the fin height to fin thickness of about 18:1 to 200:1 for the purpose of optimizing heat exchange as recognized by Azar et al," is a conclusory statement of subjective belief. Conclusory statements do not adequately address the issue of motivation to combine. In re Sang Su Lee, *supra*. Essentially, the current invention has been used as a roadmap to identify the purpose leading one to make the combination. The Office Action has not provided objective evidence for a suggestion or motivation to combine the references and the rejection should be withdrawn.

The references neither independently, or combined, contain each and every element of Applicant's claimed invention. Applicant respectfully submits that independent claim 44, and claims 45-46, which therefrom, are patentably distinct from the cited references, either alone or in combination. Claims 44-46, each viewed as a whole, are not suggested by the cited references and not obvious under 35 USC 103(a). Reconsideration and withdrawal of this rejection is respectfully requested.

#### Claims 28-31

Claims 28-31 were also rejected under 35 USC § 103(a) as being unpatentable over Morosas or Wotring in view of Azar et al. and further in view of Bishop et al. (U.S. 5,576,932).

Again, Wotring has been removed as a reference. (See attached 1.131 Affidavit).

The Office Action again states that the references teach various elements of the claims.

Applicant again respectfully submits that the Examiner has not established the *prima facie* obviousness of the present claims.

Furthermore, claims 29-31 are dependent claims. The additional limitations provided in dependent claims cannot by themselves be rendered obvious over the cited references if the independent claim from which it depends is determined to be nonobvious.

Morosas does not teach or suggest the claimed invention, including the desirability to use more than one fan, for all the reasons stated of record. Applicant also notes that Morosas appears to teach away from the use of multiple fans given the comments contained in the Background regarding the problems with the use of multiple fans with a general forced convection system (col. 1, lines 23-27). Azar also does not overcome the deficiencies of Morosas for all of the reasons stated of record. Bishop does not overcome the deficiencies of either Morosas or Azar for all the reasons stated of record. Bishop discusses a method and apparatus for cooling a heat source using a base that includes flanges referred to as "rectangular-shaped fins," such flanges in contact on their top surfaces with a plate 16 having openings 28. (See col. 4, lines 8-16). As with Azar, Applicant can not find any discussion in Bishop of any embodiments that included providing openings in the flanges (referred to in the Office Action as "fins").

In contrast, claim 28, as amended, recites a heat sink, comprising a plurality of accordion-folded thermally conductive surfaces defining a fin bundle having a top and a bottom, each fin having an aspect ratio of between about 20:1 and 30:1, wherein the aspect ratio is a ratio of fin height to fin thickness and the top of the fin bundle includes a plurality of arches containing a plurality of trimmed openings that extend along a portion of the length of the plurality of arches wherein more than fifty percent of the plurality of surfaces are receptive to an introduced convection medium; a first fan for introducing the convection medium in a first direction, the fan attached to the top of the fin bundle; a second fan for introducing the convection medium in a second direction, the second fan attached to the front of the folded fin structure; and a base attached to the bottom of the fin bundle.

Again, the products in the primary references and the products in the secondary references are fundamentally all different from one other and such critical differences must be recognized. In re Bond, *supra*.

The lack of any openings in the alleged "fins" of Bishop demonstrates a lack of appreciation of the inherent benefit provided by such openings (i.e., increased surface area for cooling). Such a structure teaches away from the claimed invention.

There is no teaching or suggestion in Morosas as to the desirability of providing a second fan nor is there an indication of any appreciation of the problem being solved by Applicant's

invention. In fact, Morosas appears to teach away from the use of multiple fans by noting problems with the use of multiple fans with a general forced convection system (See col. 1, lines 23-27). A prior art reference must be considered in its entirety, including portions that teach away from the claimed invention. The fact that a reference teaches away from a claimed invention is highly probative that the reference would not have rendered the claimed invention obvious to one of ordinary skill in the art. Stranco Inc. v. Atlantes Chemical Systems, Inc., 15 USPQ2d 1704, 1713 (Tex. 1990).

Furthermore, Applicant is not claiming to be the first to use more than one fan. Applicant is the first, however, to provide the combination of elements as recited in claim 28.

The references also fail, when combined to teach each and every element of claim 28. As noted above, it is the housing in Morosas which has an aperture aligned with an outlet opening of the fan assembly. There are no openings in the fins of Morosas.

Thus claim 28 is allowable because there is no motivation to combine the references and even when combined, the combination fails to teach each and every element of the claim.

Claims 29-31 depend, directly or indirectly, on claim 28 and are patentable over Morosas in view of Bishop for the reasons argued above, plus the elements in the claims. If an independent claim is nonobvious under 35 USC 103, then any claim depending therefrom is nonobvious. See MPEP 2143.03.

Withdrawal of the rejection is therefore respectfully respected.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. Applicant urges the Examiner to telephone Applicant's attorney, Barbara Clark at (515) 233-3865, or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date Dec. 8, 2005

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 8th day of December 2005.

Amy Moriarty \_\_\_\_\_

Name

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Signature